

Chapter 5

LOWER WEST COAST REGION

PHYSICAL CONDITIONS - LOWER WEST COAST REGION

The Lower West Coast Region covers approximately 4,000 square miles in Lee, Hendry, Glades and Collier counties and a portion of Charlotte County, in addition to 1205 square miles in the Big Cypress Basin (**Figure 4**). This area is generally bounded by Charlotte County to the north, Lake Okeechobee and the Everglades Agricultural Area (EAA) to the east, the Big Cypress National Preserve (BCNP) to the south, and the Gulf of Mexico to the west. The area is characterized by the sandy flatlands region of Lee County, which give way to sandy though more rolling terrain in Hendry County; and the coastal marshes and mangrove swamps of Collier County.

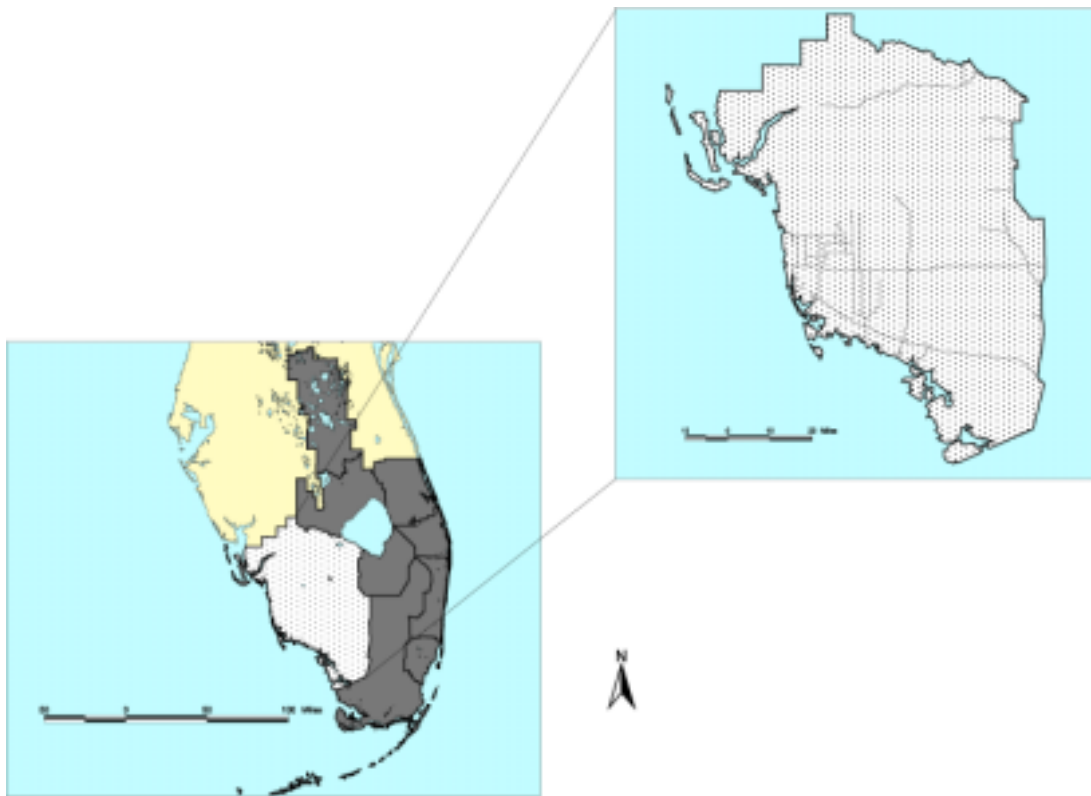


Figure 4. Lower West Coast Region.

The Caloosahatchee River Basin includes an area of 860 square miles (550,900 acres) in parts of Lee, Glades, Charlotte and Hendry counties. From a hurricane gate on the southwest shore of Lake Okeechobee at Moore Haven, the Caloosahatchee Canal drains westerly for about 5 miles through a very flat terrain into Lake Hicpochee. From

there the canal joins the upper reach of the Caloosahatchee River. On its way to the Gulf of Mexico, the river is controlled by navigation locks at Ortona (15 miles downstream from Moore Haven) and at Olga near Fort Myers. Downstream from Ortona Lock, many tributaries join the river along its course to the gulf. The Caloosahatchee River serves as a portion of the cross-state Okeechobee Waterway, which extends from Stuart on the east coast via the St. Lucie Canal, through Lake Okeechobee and the Caloosahatchee River to Fort Myers on the Gulf of Mexico. The river has been straightened by channelization through most of its 65-mile course from the Moore Haven Lock to Fort Myers.

The J. N. “Ding” Darling National Wildlife Refuge (NWR) Complex includes Pine Island NWR, Island Bay NWR, Matlacha Pass NWR and Caloosahatchee NWR, all located on the lower west coast. The health of the estuarine ecosystem they embody is directly tied to the water quality, quantity and timing of flows from the Caloosahatchee Watershed and those watersheds which drain into the Caloosahatchee River (i.e., Kissimmee River and Lake Okeechobee watersheds).

Big Cypress Swamp spans approximately 1,205 square miles (771,000 acres) from southwest of Lake Okeechobee to the Ten Thousand Islands in the Gulf of Mexico. The 570,000-acre Big Cypress National Preserve (BCNP) was established by Public Law, 93-440 in 1974, to protect natural and recreational values of the Big Cypress Watershed, and to allow for continued traditional uses, such as hunting, fishing and oil and gas production. It was also established to provide an ecological buffer zone and protect Everglades National Park’s (ENP) water supply. In 1988, Congress passed the BCNP Addition Act (Additions), which added 228 square miles (146,000 acres) to the preserve.

EXISTING CONDITIONS - LOWER WEST COAST REGION WATER MANAGEMENT

Inflows from Lake Okeechobee and runoff from within its own basin supply the Caloosahatchee River. The freshwater portion of the river (C-43 Canal) extends westward from Moore Haven, on Lake Okeechobee, through LaBelle, to the Franklin Lock and Dam (S-79). The C-43 Canal is part of the Lake Okeechobee Waterway, providing navigation between the east and west coasts of Florida. West of S-79, the river mixes freely with estuarine water as it empties into the Gulf of Mexico (SFWMD, 1995; SFWMD, 1997). C-43 is 45 miles long, averages 20 to 30 feet deep and ranges from 150 to 450 feet wide. The Ortona Lock and Dam (S-78), located approximately 27 miles upstream of S-79, separates the freshwater portion of the river into the East and West Caloosahatchee basins. Roughly 40 percent of the drainage area is in the east basin, and the remaining 60 percent is in the west basin. The total drainage area to the river between S-77 and S-79 is about 880 square miles (CDM, 1991).

The Lower West Coast Region is part of the Lake Okeechobee Service Area. The Lake Okeechobee Service Area subbasins lie at critical intermediary points in the water management system of South Florida. The needs of the Okeechobee subbasin for flood protection and drainage services affect inflows to the Caloosahatchee Estuary. Excessive

discharges of freshwater to the Caloosahatchee Estuary are caused by regulatory releases from Lake Okeechobee and runoff from each local watershed (SFWMD, 1997).

The Lake Okeechobee regulation schedule determines the timing and quantity of water that is released from the lake into the Caloosahatchee River, depending on lake water surface elevation and season. When lake levels exceed the highest allowable elevation (generally during flooding rainfall events), rapid releases of large volumes of water occur down both the Caloosahatchee River and St. Lucie Canal. At intermediate elevations, lower continuous releases of water occur. Timing and duration of releases are set by a targeted discharge volume from Lake Okeechobee, which in turn is set according to the lake level. Maximum water releases through the Caloosahatchee may be up to 9,300 cubic feet per second (cfs). Lake Okeechobee regulatory releases are made after the peak of the local inflow has passed. Minor rainfall events lead to smaller, pulsed discharges, intended to mimic natural rainfall events.

Continuous discharges to the Caloosahatchee and St. Lucie estuaries have caused documented negative effects on estuarine ecology (Chamberlain et al., 1995; Haunert and Startzman, 1985; Chamberlain and Hayward, 1996). Research has shown that prolonged releases, even at the modest rates, transform the estuarine systems into freshwater habitats within three to four weeks. The dramatic and rapid changes in salinity, and associated siltation caused by the release of suspended solids and precipitation of dissolved organic matter at the freshwater/saltwater interface, can produce long-term negative effects on these estuaries. In addition, continuous flow releases at these levels tend to create critically low benthic oxygen concentrations at the transitional zone between freshwater and the ocean or gulf. High, continuous releases generate even more problems, because of greater potential for environmental disruption and associated public concern. Even with a thorough understanding of these major environmental concerns, flood control remains a major purpose of the man-made structures, and regulatory discharges are sometimes necessary because of the high risk of loss of life and property associated with high lake stages and hurricane generated waves and tides.

The Big Cypress Swamp is a recognized physiographic province in southwestern Florida. It is a source of recharge for the shallow aquifers of South Florida and is important to the integrity of the water resources in the western part of ENP. Congress recognized the hydrological features of the swamp and established BCNP. The water regimen of the area largely determines the patterns in which temperate and tropical vegetative communities and their related wildlife species occur. During the wet season (summer and fall) when heavy rains lead to widespread surface inundation, the almost imperceptible slope of the land creates an overland sheetflow. During the dry season (winter and spring) natural surface water flows are confined to the lower elevations of strands, swamps and sloughs. The BCNP has been mapped by the USFWS as part of the national wetlands inventory. The majority of BCNP lands are classified as wetlands; exceptions are scattered hardwood hammocks, some pinelands and artificially filled areas. The Big Cypress Region is essentially a rain-driven hydrologic unit, and for the most part, it is not dependent on adjacent land for water flow. Only three small areas (approximately five percent of the BCNP) receive flows from external drainages. These areas include less than 5 square miles in the Okaloacoochee Slough, about 30 square miles in the Mullet

Slough component of the Everglades drainage, and approximately 40 square miles in the southeastern corner of the BCNP, along the western boundary of the Shark River Slough.

Problems Related to Water Management

During the annual November to April dry season, little water is released into the river from the lake, resulting in low flows and low water levels in the upper Caloosahatchee. Two problems may develop as a consequence: First, low flow may lead to development of an occasional severe algal bloom in the river above Franklin Lock (S-79) and Dam. The city of Fort Myers and Lee County both have municipal water intakes in this area. Short-term high rates of discharge from Lake Okeechobee are used to break up the blooms by the United States Army Corps of Engineers (USACE) whenever requested by the South Florida Water Management District (SFWMD or District) (USACE, 1991). During the extreme driest months (April-May) river flow may drop to near zero. When this occurs, navigation lockages through the W. P. Franklin Lock (S-79) allow a saltwater wedge to move upstream. If salt intrusion is too severe, the SFWMD requests the USACE to flush out the saltwater with a short-term high rate of discharge from Lake Okeechobee. During a declared water shortage period, the SFWMD requests the USACE to go to reduced hours of lockages (USACE, 1991).

FUTURE WITHOUT PLAN CONDITION - PHYSICAL FACILITIES AND OPERATIONS - CRITICAL RESTORATION PROJECTS

Lake Trafford Restoration

Lake Trafford is located in north Collier County and is the largest lake south of Lake Okeechobee with a surface area of approximately 1,500 acres. It is the headwaters of the Corkscrew Swamp Sanctuary to the southwest, the Corkscrew Regional Ecosystem Watershed (CREW) to the west, and the Florida Panther National Wildlife Refuge to the south. Lake Trafford has poor water quality, extensive muck accumulations, loss of native submergent plant communities and numerous fish kills. The project involves removal of approximately 8.5 million cubic yards of loose, flocculent organic sediments that blanket the bottom of the lake and transport of these sediments to a sediment disposal site through a temporary pipeline. The total project cost is \$17.5 million according to the project cooperation agreement entered into by the SFWMD and the USACE on January 7, 2000. More information is available regarding this critical project at www.saj.usace.army.mil/projects/index.html.

Southern CREW / Imperial River Flowway

The project is located in southern Lee County bordering the western boundary of the Corkscrew Regional Ecosystem Watershed (CREW). The environmentally sensitive area east of Bonita Springs has been altered by the construction of roads, house pads, agricultural berms and ditches. These alterations have resulted in restriction of historical

sheetflow, unnatural water impoundment and flooding, increased pollutant loading to the Imperial River and Estero River and disruption of natural wetland functions. The project involves acquisition of approximately 4,670 acres and restoration of historic sheetflow by removal of canal and road berms, home pads and ditches. The project also involves replacement of the Imperial Bonita Estates Bridge and modifications to the Kehl Canal Weir.

The project is divided into the following 3 phases: Phase I consists of construction of the Kehl Canal Weir Modification. Phase II consists of land acquisition and restoration of historic flows over Sections 25, 26, 35, 36 and the SE 1/4 of Section 24, T47S, R26E, approximately 2,720 acres. Phase III consists of land acquisition and restoration of historic flows over Sections 32, 33 and 34, T47S, R26E and the flowway starting at Section 32 downstream to Matheson Street, approximately 2,040 acres. The estimated project cost is \$26.1 Million, of which \$12.1 million will be cost-shared under a PCA with the USACE and the remaining \$14 million for land acquisition will be cost-shared under a separate agreement with the United States Department of the Interior (USDOI). Additional information is available at www.saj.usace.army.mil/projects/index.html.

Western Tamiami Trail Culverts

The project is located on the Tamiami Trail (US 41) in Collier County between State Road (SR) 92 and 50 Mile Bend (a distance of approximately 43 miles). In 1928, the Tamiami Trail was completed between Miami and Naples. To obtain fill material for the roadbed, a borrow canal was excavated on the northern side of the road alignment. The effect of the Tamiami Trail and adjacent borrow canal has been to intercept existing north-south flowways to the BCNP and channels flows through a few bridges/culverts. The purpose of this project is to increase the number of north-south flowways by adding culverts at locations that will restore natural hydropatterns. The installation of approximately 80 culverts under Tamiami Trail and Loop Road will improve sheetflow of surface water within Ten Thousand Islands National Wildlife Refuge, BCNP and ENP. The total project cost of the restoration elements is estimated at \$8.4 million according to the project cooperation agreement entered into by the SFWMD and the USACE. Additional information is available at www.saj.usace.army.mil/projects/index.html.

FUTURE WITHOUT PLAN CONDITION - WATER QUALITY - LOWER WEST COAST REGION

The SFWMD's Caloosahatchee Water Management Plan is the main watershed management program that is likely to result in water quality improvement activities in the basin (SFWMD, 2001). In the future, although implementation of new Lake Okeechobee regulation schedules and the Caloosahatchee Water Management Plan will reduce pollutant loading to the Caloosahatchee River/Estuary, in general, water quality conditions throughout the basin in the future without plan condition, are expected to be similar to current water quality conditions.

The District has identified the S-190 Structure (a gated culvert at the confluence of the North and West feeder canals) as a water control structure discharging into the Everglades Protection Area, that requires an assessment of pollution loads and the development of a water quality improvement strategy. This strategy must be in accordance with the non-Everglades Construction Project (ECP) structures requirement of the Everglades Forever Act (EFA). SFWMD water quality data (SFWMD, 1998a) indicate that agricultural areas upstream of the Seminole Reservation, contribute significant nutrient loads (particularly phosphorus) into the canal system, that drains into the North and West feeder canals and ultimately across the northeast corner of BCNP. Water quality improvements required under the EFA are to be completed by December 31, 2006, to assure that all water quality standards are met in the Everglades Protection Area.

WATER QUALITY PROBLEMS AND OPPORTUNITIES - LOWER WEST COAST FLORIDA REGION

The Florida Department of Environmental Protection (FDEP) listed approximately 14 water body segments in the Caloosahatchee River Basin and in downstream coastal waters on its 1998 303(d) list. Water quality parameters of concern include excessive nutrients, coliform bacteria, biochemical oxygen demand (BOD) and depressed levels of dissolved oxygen (DO). As with the Big Cypress Basin, the number of monitoring locations in coastal waters of the region used to prepare the 305(b) Report is probably inadequate to accurately characterize the extent of water quality degradation in coastal areas. Extensive urban development (Fort Myers and vicinity, Cape Coral) at the mouth of the Caloosahatchee River contributes significant point and nonpoint source pollution loads into coastal canals and downstream into the Caloosahatchee Estuary.

In 2050, water quality conditions in the upper (eastern) and central portions of the watershed are expected to be unchanged compared to existing conditions. Water quality in downstream coastal areas is expected to decline as a result of increased population growth and urban and agricultural development. Water quality impacts from increased agricultural development are anticipated be most readily observed in downstream areas of the watershed. The projected increase in population growth in urban areas of the Caloosahatchee River Basin is expected to exacerbate existing water quality problems in coastal waters, particularly those associated with wastewater discharges. Offsetting the coastal development and inland agricultural development water quality impacts is the implementation of a different regulatory schedule for Lake Okeechobee, which is expected to improve water quality conditions in the Caloosahatchee River and estuary by reducing the frequency and volume of large quantities of nutrient/sediment laden Lake Okeechobee flood regulation waters.

The Big Cypress Basin (the watershed of BCNP) includes agricultural areas west of the EAA, the Seminole Tribe's Big Cypress Reservation, most of the Miccosukee Tribe of Indians' reservation lands, and developed areas of the west coast, including Naples and Marco Island. Five water body segments within the Big Cypress Basin were included on the FDEP 1998 303(d) list. Pollutants/constituents of concern include excessive nutrients, coliform bacteria, BOD, mercury (based on fish consumption advisories) and low levels

of DO. It should be noted, that none of the 303(d) list sites are within the BCNP. However, the L-28 Interceptor Canal, on the east side of the Big Cypress Basin, was listed as use-impaired due to elevated nutrient levels and low levels of DO. It should be further noted, that due to the scarcity of ambient monitoring sites in coastal waters of the basin, actual water quality problems are likely to be more severe in coastal waters, than as described in the FDEP 1996 305(b) report, due to development pressure and point and nonpoint source pollution loading in developing areas.

Poor water quality and excessive drainage into the BCNP via the existing canal system constitute the most significant water quality impacts facing the BCNP, both now and in the future. It should be noted that the canals contributing pollutants into BCNP are not part of the C&SF Project. Existing pollution loads entering the BCNP from northwestern areas of the watershed (Big Cypress Seminole Indian Reservation, C-139 Basin and C-139 Annex agricultural areas) are expected to be reduced in 2050 through the implementation of planned and ongoing water quality improvement projects.

LAND USE - LOWER WEST COAST REGION

Caloosahatchee River

The Caloosahatchee River Region has 169,660 acres of urban land, largely fixed single family units (69,172 acres) and an almost equal number of acres in some stage of construction. There are 355,125 acres of agriculture with improved and unimproved pastures (163,348 acres), citrus groves (92,410 acres) and sugarcane (67,628 acres) predominant. Various types of rangeland make up 51,663 acres of land use. The category of barren land has 10,000 acres. This includes spoil and borrow areas (7,090 acres) and rural land in transition (2,377 acres). Transportation, communication and utilities comprise 16,280 acres.

Rangeland and agriculture dominate land use in the basin, particularly the upper portion (FDEP, 1996). The freshwater portion of the Caloosahatchee River Region is mostly agricultural. The only urban areas are the cities of LaBelle, Alva and Moore Haven (CDM, 1991). Land use adjacent to the Caloosahatchee River Estuary is largely residential and urban with the city of Cape Coral on its northern bank and the highly urbanized city of Fort Myers on its south bank. Both of these communities have experienced rapid growth, with even more growth anticipated in the near future (SFWMD, 1997).

Agriculture

Glades and Lee counties are included in this region. Almost one-half million acres are farmed in the Caloosahatchee River Basin, and approximately three-fourths of that area is pasture land (UFBEER, 1995). Large farms averaging 1,800 acres, characterize the region, with relatively low productivity per acre (UFBEER, 1995). Glades County ranks eighth in the state of Florida for cattle production (FASS, 1996a). Citrus production in the Caloosahatchee River Basin covers more than 20,000 acres (FASS, 1996b) and is

currently increasing. Much of this acreage is likely categorized as unique farmland based upon its location, growing season and high value citrus crops.

Almost 5,000 people are employed in agricultural production and services, and the payroll totals approximately \$5 million (UFBEER, 1995). Agricultural products in this region have a total market value of more than \$135 million (UFBEER, 1995).

More than 77,000 acres of farmland are irrigated in the Caloosahatchee River Basin (UFBEER, 1995). Reliable water supply is a major concern in this region, which has traditionally relied upon water deliveries through the Caloosahatchee River from Lake Okeechobee. Irrigation demands can be expected to increase as additional land is used for citrus production.

Big Cypress National Preserve (BCNP)

Roadways in South Florida often obtain necessary roadfill from excavation of a parallel canal, resulting in both an elevated obstruction to natural drainage patterns and rerouting of flow in open canals. Such drainage alterations in the BCNP include the Tamiami Trail (U.S. 41), Interstate 75 (Alligator Alley), County Route 839 (Turner River Road), County Route 841 (Birdon Road), County Route 94 (Loop Road) and numerous smaller roads. State Road 29, a north-south road, parallels the western boundary just outside of the BCNP, although its borrow canal is just within the boundary of the BCNP. Extending northward from the Tamiami Trail along the eastern boundary of the BCNP, the L-28 Levee forms the boundary between the Everglades and Big Cypress drainage. Although the levee is located immediately outside of the BCNP boundary, it is significant to the hydrology of the BCNP. The L-28 Interceptor Canal cuts through the extreme northeastern corner of the BCNP. This canal rapidly drains the agriculturally active lands north of the BCNP.

Oil and gas are currently produced from two active fields in the BCNP. A portion of the Bear Island field lies within the Okaloacoochee Slough in the northwestern corner of the BCNP. The Raccoon Point field is located in the northeastern corner of the original BCNP and north of the Jetport site.

The Miami-Dade-Collier Transition and Training Airport, popularly known as the Jetport, occupies a 32 square mile site just north of the Tamiami Trail and adjacent to the eastern boundary of the BCNP. Although originally intended as an international airport, it is currently used only for limited training activities. Construction required 3 million cubic yards of fill excavated from 7 pits, ranging from 30 to 40 feet deep and covering 65 acres of surface area just west and south of the Jetport runways. Since all structures must be elevated above the seasonal high water levels, fill material must be excavated from borrow pits. Numerous such pits exist within the BCNP, ranging in size and depth, depending upon the extent of the development.

Off-road vehicle (ORV) usage in the BCNP is regulated by the National Park Service and is permitted by the enabling legislation to the extent that it does not

significantly harm the environment. Areas open to use are designated and permits are required, with a maximum of 2000 permits to be issued per year. The Preserve is currently transitioning to a designated trail system wherein ORV use will be permitted only on designated trails. In areas where the trails are in place, users are restricted to them. In areas where trails are not yet in place, access may still be limited, and access will be from designated points only. Approximately 50 miles out of a planned 400 miles of trails are currently designated.

Some 38,700 acres, totaling six percent of the BCNP's original boundary, are nonfederal lands. These nonfederal lands consist of 12,236 acres of School Board lands including one section in each township set aside for schools, 23,488 acres of Jetport Authority lands, 1,514 acres of county roads and 1,271 acres of private lands. Nonfederal lands within the Additions have not yet been completely defined.

Agriculture within the original boundary of the BCNP is minimal. Farming is known to be more extensive within the Additions, but until the lands are formally transferred to the federal government, these agriculturally-impacted areas will not be completely defined.

Five active “life” leases, cover grazing rights on approximately 29,000 acres in the northwestern corner of the original preserve. All leases are located north of Alligator Alley. The leases can only be renewed by the permittee or spouse and are not transferable. These are gradually being phased out as lessees curtail operations or leases are relinquished.

Public Law (P.L.) 93-440 provides that members of the Miccosukee Tribe of Indians of Florida and members of the Seminole Tribe of Florida shall be permitted, subject to reasonable regulations established by the Secretary, to continue their usual and customary use and occupancy of federal or federally acquired lands and waters within the BCNP, including hunting, fishing, trapping on a subsistence basis and traditional tribal ceremonies.

Urban Areas

Naples, Marco Island and Everglades City comprise the three largest urban areas within the Big Cypress Region. All three cities are on the west coast, and Naples is among the fastest growing urban areas in the United States. It has developed into a significant retirement destination with extensive residential and business center construction. Water supply demands to meet this fast growing and developing urban area are rapidly increasing.

Fakahatchee Strand State Preserve

The Fakahatchee Strand, located just west of the BCNP, is included in the area designated by the state of Florida as an Area of Critical State Concern. It is the recipient of

the flow of the Okaloacoochee Slough, which cuts across the extreme northwestern corner of the BCNP and crosses under State Road 29 into the strand.

Southern Golden Gate Estates

West of the Fakahatchee Strand State Preserve and south of Interstate 75 is the Southern Golden Gate Estates. The area was planned as a large residential subdivision and construction began in the 1960's. The building of roads and several drainage canals in this 94 square mile area has affected the areas environmental quality, by over-draining the watershed, sending harmful freshwater discharges to the estuaries, increasing frequency of forest fires and reducing aquifer storage (SFWMD, 1996).

Water Conservation Areas (WCAs)

The BCNP is bounded on the east by WCA-3A, which is managed by the SFWMD. Water is impounded in the Conservation Area and released to ENP and BCNP on predetermined schedules. The L-28 Levee forms the boundary between WCA-3A and the BCNP.

Everglades National Park (ENP)

The southern and portions of the eastern boundary of the BCNP abut ENP. The BCNP's southern boundary forms a "stair-step" pattern that distinguishes the wetland environment of the BCNP and the estuarine environment of the ENP. The Stair-Step area receives flows from the BCNP enroute to the estuarine environment of the ENP.

American Indian Reservations

Two American Indian reservations abut the BCNP. The Seminole Tribe is along the eastern part of the BCNP's northern boundary, and the Miccosukee Tribe is along the eastern boundary of the BCNP.

Agriculture

A persistent southward progression of agricultural development presents an external threat to the water quality and quantity of the Okaloacoochee Slough and Mullet Slough drainages. Expanding agricultural development is now located along the BCNP's northern boundary.

Hendry and Collier counties are included in this region. More than 800,000 acres are farmed in the Big Cypress Region, and almost half of that area is pasture land. The region is characterized by moderate to large farms producing more than \$600 per acre in market value (UFBEER, 1995). Hendry County ranks third in the state of Florida for cattle production (FASS, 1996a). Approximately 70,000 acres of sugar were harvested in 1996 (FASS, 1996d). Hendry County ranks third in the state for acres of citrus with over

100,000 acres, while Collier County is ninth with over 36,000 acres (FASS, 1996b). Citrus production in the Big Cypress Region is currently increasing. The Big Cypress Seminole Indian Reservation is located in this region along the northern boundary of the BCNP. The reservation includes some citrus groves and row crops, as well as pasture land.

More than 17,000 people are employed in agricultural production and services, and the payroll totals approximately \$16 million. Agricultural products in this region have a total market value of more than \$525 million. Hendry and Collier counties rank third and fourth in Florida for market value of agricultural products (UFBEBR, 1995).

ELIGIBLE COMPREHENSIVE EVERGLADES RESTORATION PLAN (CERP) PROJECTS

C-43 Basin Storage Reservoir

This project is the first part of the C-43 Basin Storage Reservoir and ASR component. The project includes an above ground reservoir with a total storage capacity of approximately 160,000 acre-feet located in the C-43 Basin in Hendry, Glades or Lee Counties. The purpose of this project is to capture C-43 Basin runoff and releases from Lake Okeechobee. The reservoir will be designed for water supply benefits, some flood attenuation to provide environmental water supply deliveries to the Caloosahatchee Estuary, and water quality benefits to reduce salinity and nutrient impacts of runoff to the estuary. It is assumed that, depending upon the location of the reservoir and pollutant loading conditions in the watershed, the reservoir could be designed to achieve significant water quality improvements, consistent with appropriate pollution load reduction targets. More detailed information is available at www.evergladesplan.org.

Caloosahatchee Backpumping with Stormwater Treatment Area

This project includes pump stations and a stormwater treatment area (STA) with a total capacity of approximately 20,000 acre-feet located in the C-43 Basin in Hendry and Glades Counties. The purpose of this feature is to capture excess C-43 Basin runoff, to be used to augment regional system water supply. Backpumping will only occur after estuary and agricultural/urban demands have been met in the basin, and when water levels in the C-43 storage reservoir exceed 6.5 feet above grade. Further, Lake Okeechobee water levels must be within a specified range to accept this water and not impact ecological resources. When these conditions are met, a series of pump stations will back-pump excess water from the reservoir and the C-43 Basin to Lake Okeechobee after treatment through a stormwater treatment area. The stormwater treatment area will be designed to meet Lake Okeechobee phosphorus and other pollutant load reduction targets consistent with the surface water improvement and management (SWIM) plan for the Lake, and targets that may be developed for the Lake and the watershed where the facility is to be built. More detailed information is available at www.evergladesplan.org.

Southern Golden Gates Estates Hydrologic Restoration

This project includes a combination of spreader channels, canal plugs, road removal and pump stations in the lower west coast region, south of I-75 and north of U.S. 41 between the Belle Meade Area and the Fakahatchee Strand State Preserve. The purpose of this project is to restore and enhance the wetlands in Golden Gate Estates and in adjacent public lands by reducing overdrainage. Implementation of the restoration plan will also improve the water quality of coastal estuaries by moderating the large salinity fluctuations caused by freshwater point discharge of the Fakahatchee Union Canal. The plan will also aid in protecting the City of Naples' eastern Golden Gate wellfield by improving groundwater recharge. More detailed information is available at www.evergladesplan.org.

Big Cypress / L-28 Interceptor Modifications

This project includes modification of levees and canals, water control structures, pumps and stormwater treatment areas with a total storage capacity of 7,600 acre-feet located within and adjacent to the Miccosukee and Seminole Indian Reservations in Collier and Hendry Counties. The purpose of this project is to reestablish sheetflow from the West Feeder Canal across the Big Cypress Reservation and into the Big Cypress National Preserve, maintain flood protection on Seminole Tribal lands and ensure that inflows to the North and West Feeder Canals meet applicable water quality standards. Consistency with the Seminole Tribe's Conceptual Water Conservation System master plan will be maintained. More detailed information is available at www.evergladesplan.org.